

RECLOSABLE METAL CONTAINER

This invention relates to a reclosable metal container such as a can of steel or aluminium. In particular, but not exclusively, it relates to a bottle-shaped can for packaging beverages.

5 So-called "bottle cans" have been proposed in patent applications such as JP-A-2003165539, for example, in which a container body is closed at one end by a can end seamed to the body to form a base, and at the opposite end is necked inwardly to form a shoulder. A portion of  
10 the can body extends away from the free edge of the shoulder into a cylindrical portion which is threaded so as to be closed by a screw closure.

15 Alternative proposals for bottle cans use plastic collets to provide a thread for reclosing the can instead of threading the metal neck.

US-A-2,864,529 describes an overcap for a metal containers having a cone or raised top, the overcap covering a seam which joins the cone to the body of the container. DE 29980137 U describes a plastic component  
20 which covers the seam between a neck component and a can body. JP 10 167356 A describes a shoulder cover for fixing a cap which is removeably mounted on a container body.

25 Whilst these current proposals are workable in theory, there are, in practice, a number of practical problems. Necking of the container body sufficiently to provide a neck finish for reclosing may involve up to 56 necking stages. Because of its material properties, this is not usually possible if the container is made of steel  
30 of conventional thickness (for example 0.08 mm). In order

to withstand necking forces, the steel would need to be thicker than is conventional and therefore less economic to use. Furthermore, less metal exposure is acceptable with steel than with aluminium.

5 Non-standard sizes of can bodies may need to be used since a standard 355 ml capacity can with a plastic screw threaded neck would be too tall for manufacturing lines.

This invention seeks to overcome these problems and to provide a bottle can which enables standard tooling to 10 be used, irrespective of the desired neck finish.

According to the present invention, there is provided a reclosable container comprising a metal can body having a base and a side wall, a metal neck component seamed to a free end of the can body, the neck 15 component comprising a generally frustoconical shoulder portion and a cylindrical portion, the container further comprising a sleeve which fits over the metal neck component and covers the seam between the neck component and can body; characterised in that the sleeve is of 20 plastics material, extends over the cylindrical portion of the neck component and is threaded to allow reclosability of the container.

It should be noted that the term "generally frustoconical" is intended herein to mean both a precise 25 frustoconical shape and shapes which reduce the cross-sectional area of the container such as a stepped shoulder portion.

The can body is typically a standard beverage can body which can be mass-produced using regular beverage 30 can manufacturing lines. Different neck finishes can be

offered by a range of neck components and plastic sleeves. The can body may be made from steel or aluminium of thin gauges such as 0.1 mm for aluminium, 0.08 mm for steel. The neck component may be of thicker material and 5 provides barrier properties to prevent, for example, passage of gas which may affect the product in the container.

According to a preferred aspect of the invention, the sleeve includes a detent for fixing the sleeve onto 10 the seam. This detent provides a seal to prevent water ingress. Ideally the open end of the sleeve may be retained by a curl on the neck component. Generally the can body has a small necked-in region at the end to which the neck component is seamed. The sleeve may extend over 15 this region on the can body so as to fit against the can body side wall and resist water ingress.

The sleeve may be profiled so as to correspond to the shoulder shape on a conventional plastic bottle. In this embodiment the neck component includes a support 20 region between the frustoconical and cylindrical portions. This support region may be a second cylindrical portion of larger diameter than the first cylindrical portion such that the first cylindrical portion supports the threaded part of the plastic sleeve and the second 25 portion supports a part of the sleeve which is profiled to a shoulder shape.

Preferred embodiments of the invention will now be described, by way of example only, with reference to the drawings, in which:

Figure 1 is a schematic side section of a first embodiment of container according to the invention; and

Figure 2 is an enlarged side section of the shoulder and neck region of the container of figure 1.

5 Figure 1 shows a container comprising a can body 1, neck component 10 and sleeve 20. The can is a typical beverage can body comprising a side wall 2, necked at its upper end 3, and an integral domed base 4. The can body is made of sheet metal, typically steel or aluminium in  
10 the range of 0.25 mm to 0.35 mm thick with walls reduced in thickness during manufacture.

Neck component 10 comprises a metal support having a generally frustoconical part 11 and a cylindrical portion 12. As best shown in figure 2, a second  
15 cylindrical portion 13 is joined to the first cylindrical portion by a shoulder 14. The neck component terminates in a flange or, ideally, curl 15 at its upper end which holds the plastic sleeve 20 in position. The sleeve thus also hides the cut edge of the neck component. At its  
20 lower end the neck component is fixed by a double seam 16 to the can body 1.

If the container is closed by a plastics closure having a bore seal, the bore seal will impart further cut edge protection. In this instance the cut edge of curl 15  
25 would be trapped between the sleeve 20 and the bore seal of the closure.

The sleeve 20 has a curved sheath 23 with a hook-shaped detent 21 which clips onto the seam 16. Annulus 22 provides further location of the sleeve over the seam.  
30 The sleeve of figures 1 and 2 is thus fixed in position

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by the detent 21 and neck component flange 15. In this embodiment, the sleeve 20 has a cylindrical upper portion 24 which is threaded 25. Below thread 25 the upper portion includes a neck support ring 26 for handling 5 purposes.

For aesthetic reasons the sleeve may be shaped so as to blend into the side wall of the can body. The sleeve may be made of thin plastics so that extra support for the curved shape is provided by shoulder 14 of the neck 10 component.